



Educational Topic

Computer Scientist

Related Job Titles:

Systems analyst, computer engineer, software engineer, software developer, database administrator, computer support specialist, network engineer, hardware engineer, network administrator, systems administrator, database specialist, communications specialist

Job Description:

Computer scientists design and develop new computer hardware and software. They research, form new computer rules and invent new products such as robots that use virtual reality, new computer languages, programming tools or even computer games. They normally work in offices or laboratories and spend most of their time on the computer.

Interests / Abilities:

- Do you enjoy working with math and technology?
- Are you good at math?
- Are you good at reasoning and logic?
- Do you like to solve problems?
- Do you work well with a team?
- Do you pay close attention to details?
- Do you express yourself well when speaking to others?

Suggested School Subjects / Courses:

- Math
- Science (physics)
- Computer programming
- Electronics

Education / Training Needed:

The minimum education required for this position is a bachelor's degree in computer science, computer engineering, electrical engineering, information science, computer information systems, data processing or a similar subject from an accredited college or university. This study must include 30 semester hours of differential and integral calculus, statistical techniques and computer science theory and practical applications. To do research, a Ph.D. is highly desired for this position.

Areas of expertise:

- *Computer engineering*: use math and science to design hardware, software, networks and processes to solve technical problems such as analyzing flight systems and aerospace data
- *Applications programming*: design and develop software that control and automate processes such as flight software
- *Communications*: install, test and solve problems for hardware and software on a network
- *Systems analysis*: use computer technology to solve specific business, scientific or engineering problems
- *Database administration*: design, change, test and manage the security of computer databases
- *Computer support*: assist and advise computer users with hardware, software and system problems

Additional Resources:

- **Association for Computing (ACM)**
<http://www.acm.org>
- **IEEE Computer Society**
<http://www.computer.org>
- **Institute for Certification of Computing Professionals (ICCP)**
<http://www.iccp.org>
- **Robotics Education**
<http://robotics.arc.nasa.gov>
- **ThinkQuest** - encourages the use of computers and network technology in education.
<http://www.thinkquest.org>
- **Student Educational Employment Programs**
http://nasajobs.nasa.gov/stud_opps/employment/index.htm
- **NASA Jobs**
<http://nasajobs.nasa.gov/>
- **NASA Summer High School Apprenticeship Research Program (SHARP)**
<http://www.mtsibase.com/sharp/>

What can I do right now?

- Read magazines like *MacWorld*, *Byte*, *PC World*.
- Join a computer club.
- Take as many math and computer classes as you can.
- Visit Astro-Venture regularly to participate in chats and activities.
<http://astroventure.arc.nasa.gov>
- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit.
(202) 783-7200
- Participate in science fair projects.
- Buy an old computer at a thrift store, take it apart and see how it works.

- Please take a moment to evaluate this product at:
- http://ehb2.gsfc.nasa.gov/edcats/educational_topic
- Your evaluation and suggestions are vital to continually improving NASA educational materials.
- Thank you.



<http://quest.nasa.gov/people/index.html>

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